

Present, past, future.

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Let's first define the concept of "present tense". To do this, let us recall that in quantum mechanics, only after the process of observing/measuring a quantum system does the system have classical features that correspond to some information about the system itself.

For example, only after the process of observing/measuring a quantum system, certain physical quantities (position, momentum, etc.) can be assigned specific values. Prior to the measurement process, such values simply do not exist in reality (for example, the position of an electron in an atom, etc.).

We especially note that only the process of observation/measurement of these physical quantities makes them real - before the process of measurement they simply do not exist.

Therefore, it can be argued that the present is the process of interaction of a certain material object (or observer, device, etc.) with the rest of the Universe, or using the terminology of quantum mechanics, the present is the process of observation/measurement by the observer of the rest of reality.

Recall that time is the duration of an event in our Universe, that is, in a 4-dimensional space-time continuum.

Given that there is a flow of time, each material object (elementary particle, atom, molecule, person, galaxy, etc.) has a certain duration of existence (time period) called the "life of the object".

According to Einstein's GR, all material objects bend the space-time continuum, therefore, all material objects interact with the rest of the Universe, that is, they exist in the present.

The movement of the "present" (movement of the process of observation/measurement) along the time "line of life" creates the illusion of the existence of the past and the future - the illusion of the existence of the "arrow of time". Since the past is the past process of observation, and the future is the future process of observation.

But, in reality, there is only the present time - a momentary process of interaction of a material object with the rest of the Universe (the process of observation/measurement).

The arrow of time implies that there is an aspiring flow of time directed from the past to the future (through the present) for the whole Universe. But, if there is only the present, which "slides" along the life line of a particular object (and creates the illusion of the existence of an arrow of time for this particular object), then it is obvious that the "main" arrow of time common to all objects of the Universe can no longer exist.